

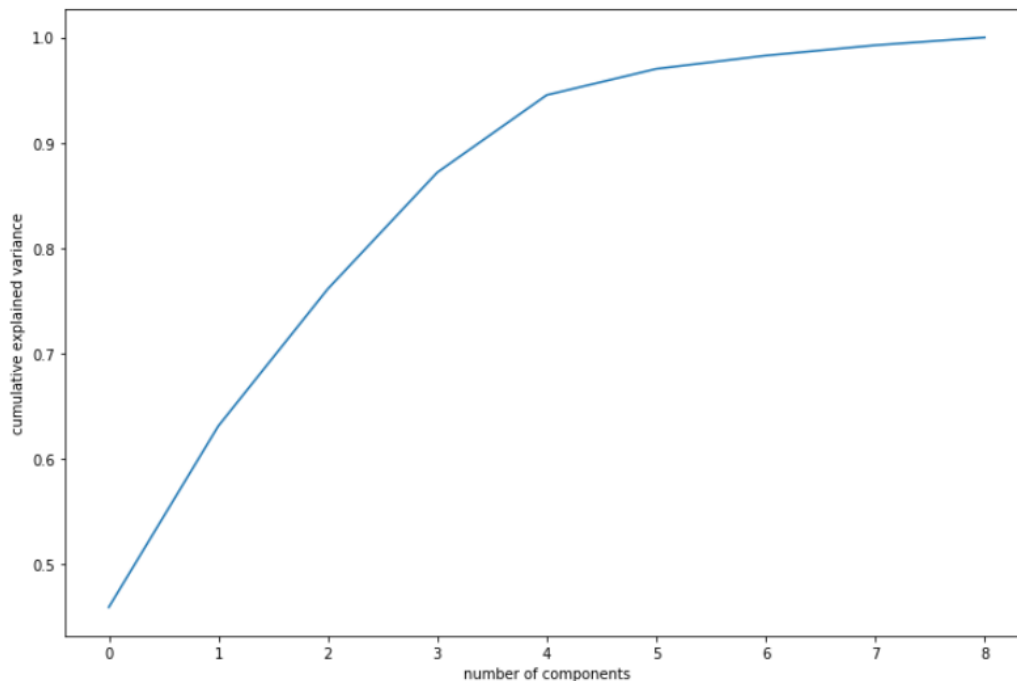
# ASSIGNMENT PART 1

# Problem statement

- HELP foundation has got a monetary fund of 10M from various organisations.
- HELP foundation needs to decide how to use this money strategically and effectively.
- We are given with a data set which comprises of countries and their respective attribute values such as child mortality rate, income, exports, imports, health, inflation etc...
- OUR AIM :
  - To categorize the countries using some socio-economic and health factors that determine the overall development of the country.
  - and also we need to suggest the countries which the CEO needs to focus on the most.

# RESULT OF PCA

## RESULT : PRINCIPAL COMPONENT ANALYSIS



max corr: 0.03287083444738243 , min corr: 0.0

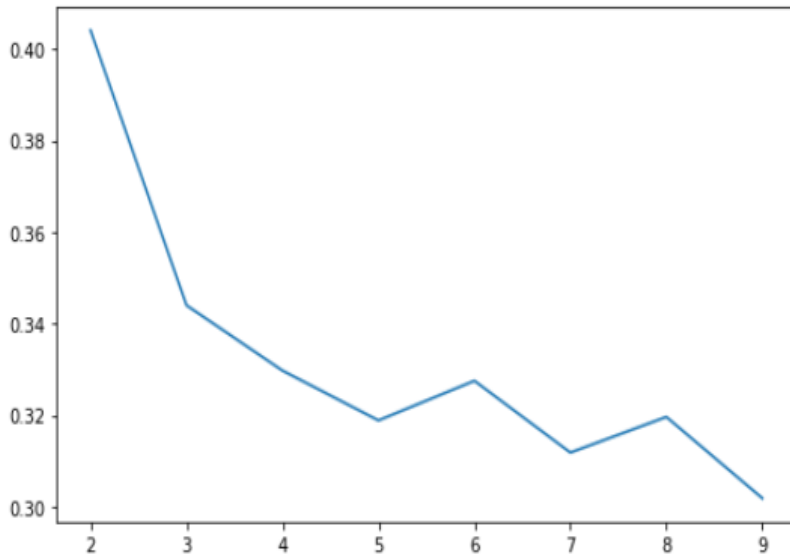
We can see that we just need last 3 Principal components for our analysis.

This is because they comprise almost 80 % – 85 % of the data values in 3 Principal components.

When checked for co-relations, it's value is almost nearer to 0. hence the chosen PCs are the most ideal values to carryout PCA.

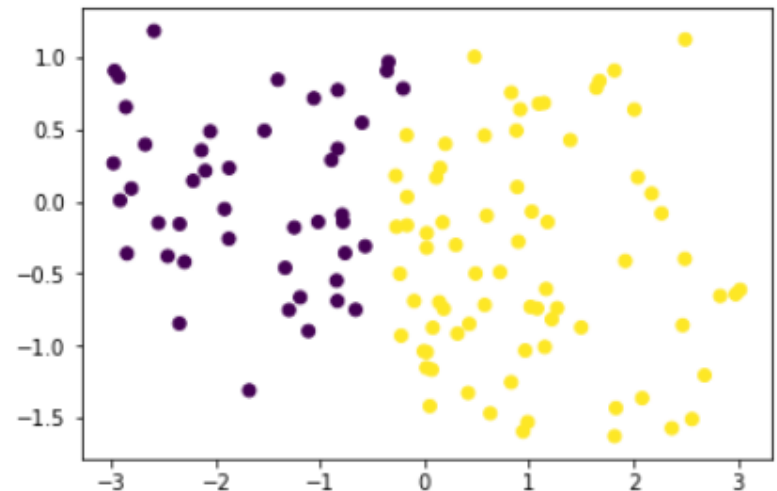
# RESULT OF CLUSTERING

## RESULT : CLUSTERING :: K-means



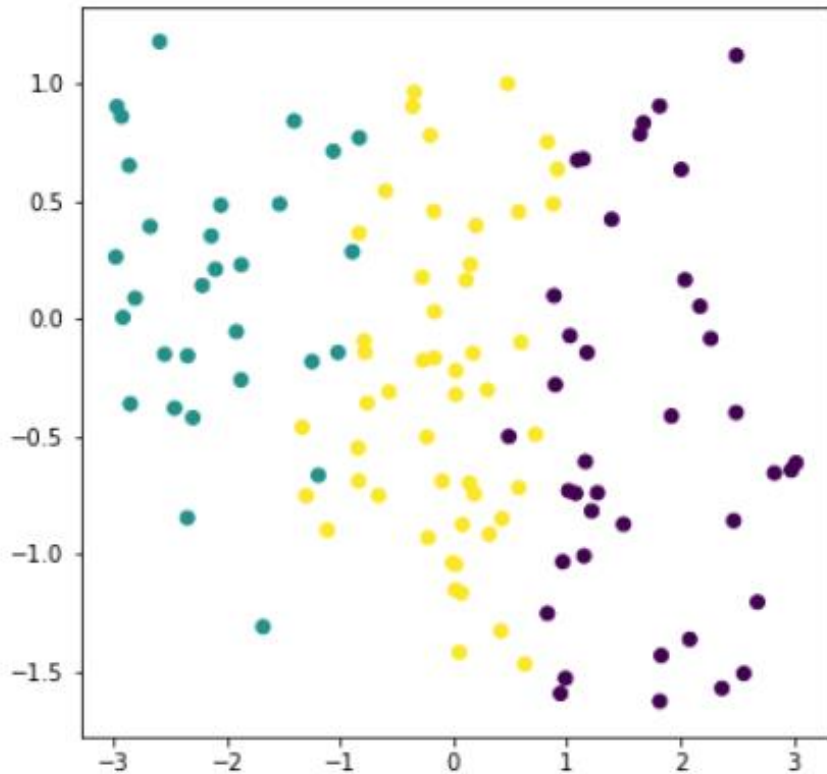
The graph plots the ideal choice of “K” value.

Here,  $k=2$  is the highest. And hence the clustering happens as follows



# RESULT OF CLUSTERING

## RESULT : CLUSTERING :: K-means (Cont.)



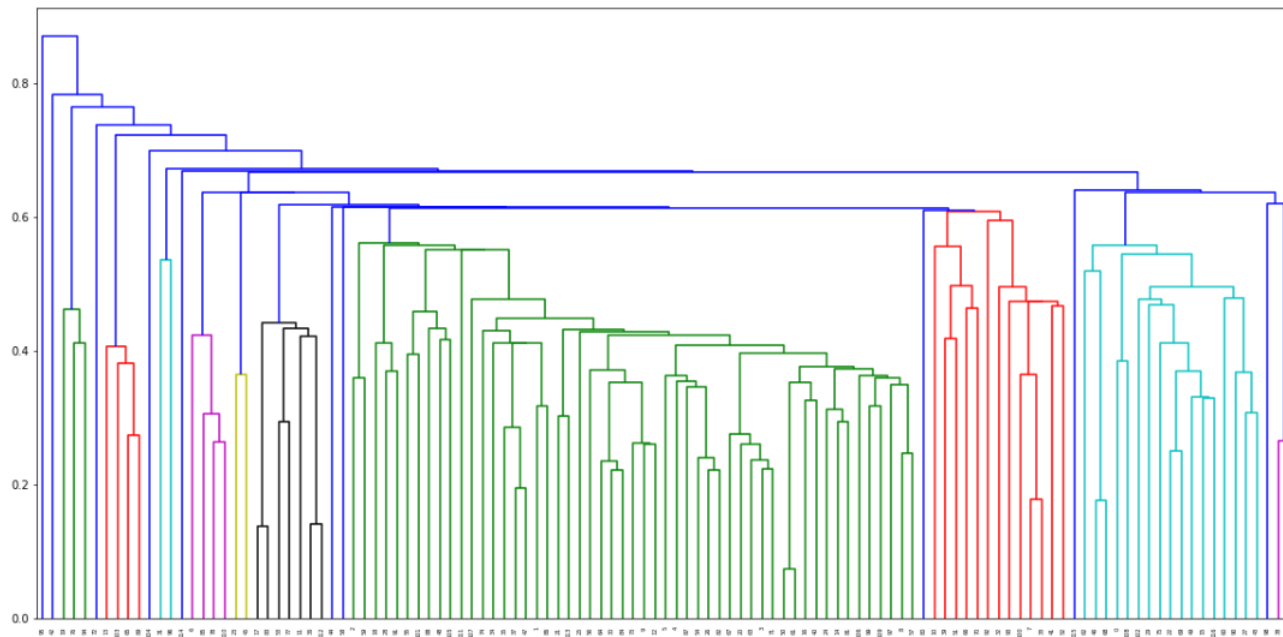
K means clustering when the value of  $k$  is chosen as 3.

It could be inferred from the graph (in the last slide) that the next highest “K” value for creating a cluster is 3

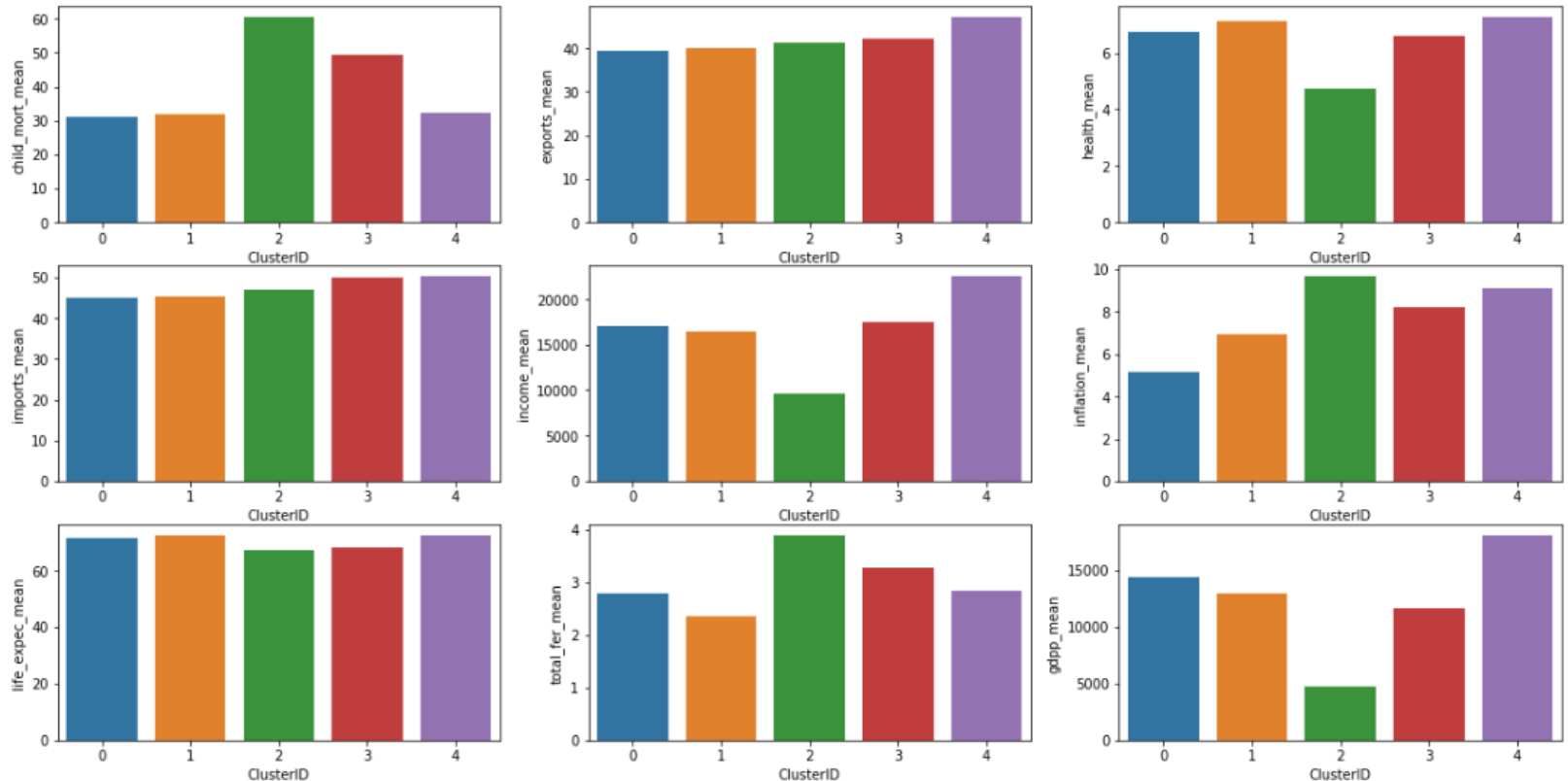
Hence clustering by considering  $K = 3$  is given as shown in the fig.

# RESULT OF CLUSTERING

- RESULT : CLUSTERING :: hierarchical clustering



# ANALYSIS



It can be seen that the 5<sup>th</sup> cluster (where K = 5) consists of the ideal countries on which the CEO of HELP foundation can invest. Or if they are already been funded by HELP, then these can be the set of countries on which the CEO can target at.

# RESULT

- When we sort the country by child mortality (DESC) and by GDPP (ASC), we would get the following countries in the TOP 5.
- Haiti
- Sierra Leone
- Chad
- Central African Republic
- Mali

Hence these are the countries that the HELP CEO needs to focus on investing the 10M dollars.